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EXAMINER	
GAMINO, CARLOS J	
ART UNIT	PAPER NUMBER
1793	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/552,180	TEH, LIP	
	Examiner	Art Unit	
	CARLOS GAMINO	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 November 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 November 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Neither drawings nor specification clearly explain what claim 17 encompasses. Does the PHS have square or rounded corners? Are the corners welded? Is the strain referring to the strain in a weld or in the corner of the PHS? For at least these reasons, one cannot ascertain the metes and bounds of the claim. For the purpose of this examination it will be assumed that the claim means that a weld is formed not just on the flange of the PHS but that it also wraps around the 2 corners adjacent to the flange and stops at a point where the next flange begins.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. **Claims 1-4, 15-16 and 19-20** are rejected under 35 U.S.C. 102(b) as being anticipated by Tadateru et al. (JP2002172462).

6. Tadateru teaches the welding of a joint between a structural high tensile square tubular member [PHS] to a diaphragm (20) [member], by welding a flange of the pipe to the other member, figures 1-4 and 11, paragraph 0034 under Means. The structural high tensile square tubular member is cold formed steel, paragraphs 0006-0008. The weld beads are applied transversely across the face of the weld groove to fill it in and then on surface of the flange in the range of 5mm to 15mm, which will be referred to as the **buildup**. The range being defined as the distance from the toe of the cap weld to the toe of the surface weld on the flange. This is done to help prevent cracks in the weldment where cracks are prone to happen, see abstract. (The information not obtained from the abstract was obtained from a machine translation at the JPO website.)

7. Regarding claim 1, Tadateru clearly shows a weld extending from the connection weld to a remote location.

8. Regarding claims 2-4, Tadateru clearly states that the welding in done a square tube, which has 4 flanges, and a weld is applied across the surface of a at least one flange.

9. Regarding claim 15, Tadateru clearly states that the square tube is welded to a diaphragm, see figure 11.

10. Regarding claim 16, a bending moment "can be" applied to any joint which then inherently transfers the stress to both members. Therefore, the joint of Tadateru meets this limitation.

11. Regarding claims 19-20, Tadateru refers to the problem of welding cold-formed steel and proposes a solution to this. Therefore, meeting the limitations of this claim.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. **Claims 5-8, 10-14 and 17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Tadateru et al. (JP2002172462) as applied to claim 1 above.

14. What is not specifically disclosed but is inherent to the method of joint design is the number of passes required to fill the gap and the minimum or maximum size of the weld beads that can be reasonably achieved. In a typical weldment there is a "connection weld" which is typically called the **root pass**. Any additional weld beads or intermediate weld beads are called **filler passes**. The top pass on a groove weld is called the **cap pass**. Any weld beads done outside the groove weld are called **buildup**. Not all welds contain all of these elements due to the size of the weld being created. A typical GMAW weld bead width can range any where from 3mm to 12mm depending on numerous variables; electrode size, power input, weld speed, technique and so on. So

if a reasonable weld bead size of 5mm is used to make the buildup pass at a width of 15mm, that would be 3 weld beads, 2 intermediate weld beads and 1 spaced weld bead. Take the root pass and any subsequent filler passes if needed and the total weld could be 30mm. However, this number can vary widely depending on the size of the weld beads and the thickness of the pipe being welded. Once again this comes back to the method of joint design and is very case dependent. It would have been obvious to one of ordinary skill in the art at the time of the invention to choose the applicant's welding parameters based on the materials being joined to achieve the desired weld profile.

15. The examiner would like to point out that **buildup** inherently makes the area where it is placed stronger by the mere fact that there is more material in that area. So if there is more material in an area it would be inherently more difficult to break.

16. The examiner would also like to point out that by simply applying a weld at a connection the "rotation capacity" of that joint would increase. Also applying more weld metal would further increase the "rotation capacity" as is done by Tadateru.

17. Regarding claim 5, from the explanation above Tadateru does have more than one weld bead on the surface of the flange. Therefore inherently meeting this limitation.

18. Regarding claim 6, from the explanation above it can be seen that the root pass (connection weld) and is followed by filler passes (intermediate passes), which is in turn followed by the buildup passes (surface weld beads or additional intermediate passes), and finally ending with a weld bead (spaced weld bead). Therefore inherently meeting this limitation.

19. Regarding claim 7, it is well known in the art to apply buildup where the additional support for stresses is needed most and that applying buildup everywhere is very expensive and time consuming. Tadateru applied the buildup where cracking was the most prone therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to apply buildup to the flange that is most likely to crack and not to the others to save time and money.

20. Regarding claim 10, from the explanation above the limitation of the "additional weld bead" is technically a filler pass. Tadateru meets this limitation. The examiner would also like to point out that the number of filler passes depends on numerous factors and is usually necessary to provide the weld joint with sufficient strength.

21. Regarding claims 11 and 14, Tadateru does not teach a weld bead having a .5 thickness of the flange. However, Tadateru does not limit the thickness of the tube that this method can be performed on. In the specification the applicant states that the tube thickness is 4-5 mm. One of ordinary skill in the art at the time of the invention would know that with the applicant's disclosed welding parameters that a 2-3 mm thick weld bead is typical of the process and that the amount of weld that can be deposited in a single pass would most likely be limited by the burn through on the pipe. This is a matter of joint design and maximum thickness of a weld bead can be determined by variables such as the thickness of the material being welded, the heat input, the process being used, desired microstructure or others. Therefore, if the method of Tadateru were to be performed on 4-5 mm tubular members to decrease the weldment's cracking susceptibility it would have been obvious to one of ordinary skill in the art of joint design

at the time of the invention to have used a weld with a thickness of 2-3 mm or thicker to speed up the welding process but to limit the thickness of the weld beads to avoid defects from oversized weld beads such as burn through. Furthermore, the examiner would like the applicant to point out where in the specification the limitations of claims 11 and 14 are addressed.

22. Regarding claims 12 and 17, Tadateru does not specifically teach how much of the circumference of the tube receives the weld. It is well known in the art that the more of the circumference of a weld joint that is welded the stronger the joint will become, which goes back to joint design. The length of the joint that is welded can depend on money, stresses involved, material or the design of the structure. Sometimes a complete circumferential weld is overkill and only two flanges need to be welded or maybe 30 cm of total weld of a 40 cm diameter tube need be welded for sufficient strength. It would have been obvious to one of ordinary skill in the art at the time of the invention to wrap the weld around the corners of a flange or partial up another flange if that would provide sufficient strength, save time and/or money.

23. Regarding claim 13, from the explanation above Tadateru applies a weld bead that can range from 10-30 mm. The size of the weld is dependent on the type of members joint and one of ordinary skill in the art at the time of invention would have designed the size of the weld depending on the these factors.

24. **Claims 8, 9 and 18** rejected under 35 U.S.C. 103(a) as being unpatentable over Tadateru et al. (JP2002172462) in further view of Linnert. What Tadateru does not teach is the forward or backward welding and their effects. Linnert teaches that in a

multipass weld each weld bead tempers the previous weld bead and HAZ and that this tempering makes the weld bead and HAZ tougher. So it is not unexpected that the backward welding technique is better because the spaced weld in this case would be tempered. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to place the spaced weld bead first so that it would be tempered which would reduce the susceptibility of that region to cracking. Claim 18 is included in this rejection for the reason stated in paragraph 14 above.

Response to Arguments

25. Applicant's arguments filed 11/24/08 have been fully considered but they are not persuasive.

26. In regards to the 112 2nd paragraph rejection of claim 17. The applicant "believes that the office action misconstrues the definiteness requirement." The examiner disagrees. In the applicant's remarks concerning the 112 rejection, the applicant refers to figures 16 and 34 as providing guidance as to what is the scope of the claim is. However, upon looking at figure 16, no welds can be seen and upon looking at figure 34, only welds on the flange can be seen. The applicant further states that by reading page 23-28 one of ordinary skill would "clearly understand the claim." However, upon reading the specification at the top of page 25 it is stated that the extra layers of weld are shown in figure 12 but, figure 12 is nothing more than a gray blob in which nothing that resembles a weld bead can be seen further clouding the issue. Therefore upon

reading the applicant's remarks, the claim and the specification the examiner could not and still can't determine the scope of the claim.

27. The applicant argues that "*the weld beads of Tadateru are applied across the face of the weld groove to fill it in. This is different than forming a continuous weld across a surface of the polygonal hollow section as is claimed in present claim 1. See, for example, Figures 11, 24, and 34.*" The examiner disagrees with this statement for a couple of reasons. First, what is shown in figures 11, 24 and 34 is not what is claimed in claim 1. Claim 1 lacks the alignment of the tube, the positive recitation of multiple weld beads, and even in which direction the weld runs along the surface of the PHS. (This claim is so vague that a stiffener welded between the member and the PHS the weld used to join these three members would read on the claim because it would start on one end of the stiffener connecting the stiffener to the member, continue to the corner where all three meet [connection weld] and then continue on between the stiffener and the PHS till the stiffener ends [remote from the connection weld].) Second, the applicant has not distinguished the claimed surface from the groove face of Tadateru. A groove face is still a "surface" of the PHS and the root pass {connection weld] of Tadateru is placed on the "surface" of the PHS to connect the PHS to the diaphragm [member].

28. The applicant argues "*Tadateru does not disclose a "weld extending continuously across the surface from a connection weld connecting the PHS and the member to a location that is remote from the connection weld." As explained above, in Tadateru, additional welds are "built up" on the weld groove. Tadateru does not extend a weld "to*

a location that is remote from the connection weld," as required by claim 1." The examiner disagrees. As stated above the root pass of Tadateru does connect the PHS to the diaphragm and extend across the face of it. The "built up" weld portion of the weld also clearly extends to a location remote from the root pass as shown in figures 1b, 2b, 3 and 4. Also the word remote is very subjective so even a weld bead laid next to the connection weld bead could be considered remote.

29. The applicant argues that "*Although Tadateru may inherently disclose multiple passes, the connection weld (root pass) and intermediate weld beads (filler passes) taught by Tadateru are structurally different that the welds required by claim 6… See, for example, Figure 34*." The examiner disagrees. Whether or not they are structurally different from figure 34 is not the issue, whether or not the claimed language is different from Tadateru is. The root pass [connection weld], filler passes [intermediate weld] and build up [spaced weld] read on the claim 6. Additionally the claim does not limit the addition of filler passes to fill the groove.

30. The applicant argues that "*Build up cannot exist unless there is a groove weld for it to be built upon*". The examiner disagrees and points the applicant to figure 2b of Tadateru which clearly shows build up (31) resting outside the groove on a surface next to the groove. Furthermore, build up in general, can be placed anywhere on a weldment where there is a perceived weakness.

31. The applicant argues that Linnert "teaches away from claims 8, 9 and 18 by suggesting the addition of heat to the spaced weld bead." The examiner disagrees. Linnert was used to teach that by placing a second weld bead next to a first weld bead

the first weld bead and its HAZ will become tempered which is a desirable property for a weld if one is worried about cracking because the tempered weld bead and HAZ are more ductile. This teaching is used to explain why "the formation and location of a heat-affected zone is significantly less detrimental when the backward technique is used." This also explains why this technique avoids heat accumulation in the flange area of the buffer weld. By welding in a "backward" technique the previous weld bead and HAZ are tempered and the heat is the greatest in the direction of progression and less in the direction of the first weld bead [buffer weld/remote weld] therefore heat accumulation adjacent the buffer weld is inherently avoided.

Conclusion

32. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

33. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CARLOS GAMINO whose telephone number is (571) 270-5826. The examiner can normally be reached on Monday-Thursday, 8:30am-7:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica L. Ward can be reached on (571) 272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CG

/Jessica L. Ward/
Supervisory Patent Examiner, Art Unit 1793